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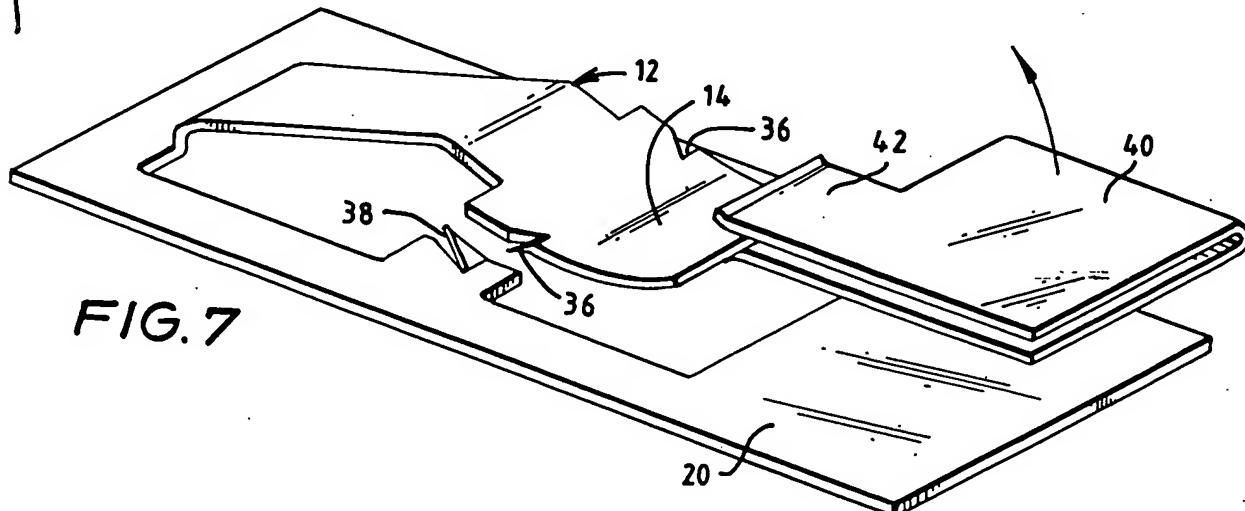
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GB 2056547 A GB 2029894 A GB 1590246 A  
US 4253216 A

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INT CL<sup>s</sup> B42F, F16B

(54) Clip for paper or fabric

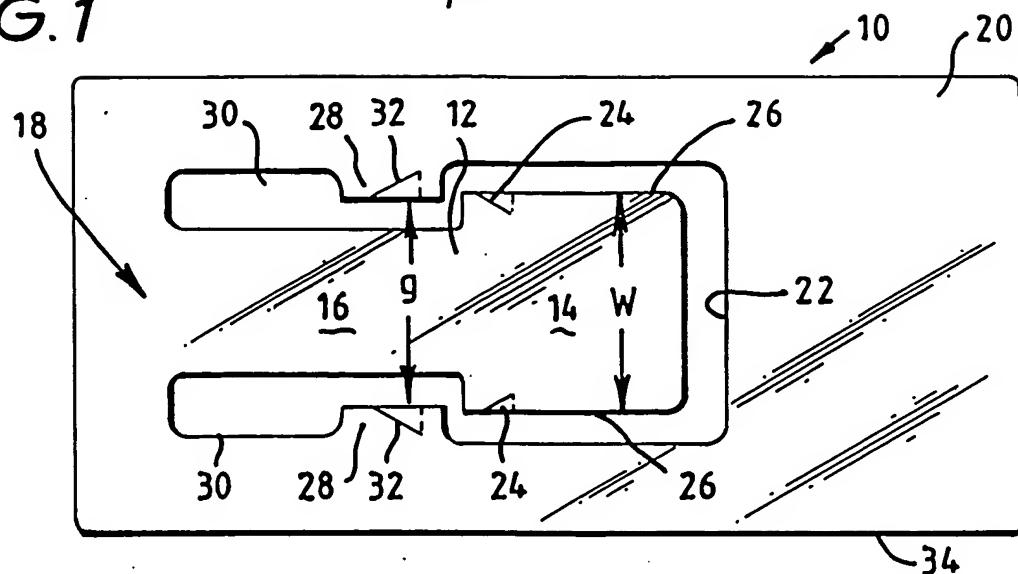
(57) A sheet metal clip has a central tongue (14) integral with a perimeter frame (20) and opposed pairs of barbs (36, 38) depending from the central tongue and upstanding from the frame and reverse directed towards the junction between the tongue and the frame. The clip may be made by cutting a sheet metal blank to form the central tongue within the perimeter frame and bending the tongue up from the frame so that it lies above the plane of the frame with the tongue barbs opposed to the frame barbs. A tool (40) for removing the clip is also provided.



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*FIG. 1*

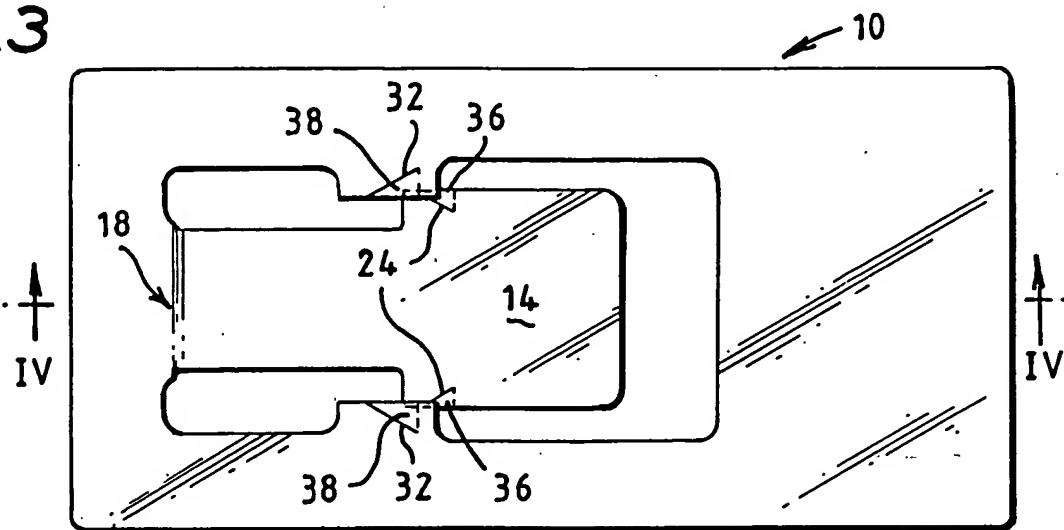
*1/2*



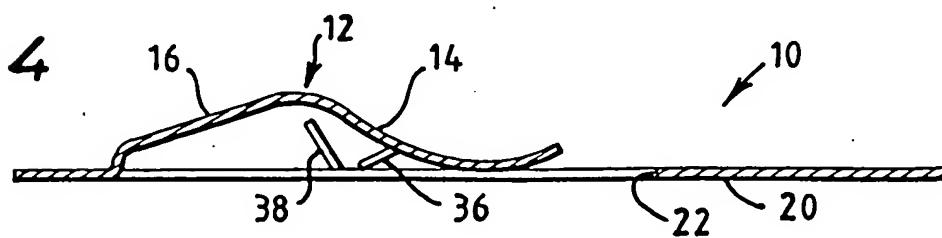
*FIG. 2*



*FIG. 3*



*FIG. 4*



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FIG. 8

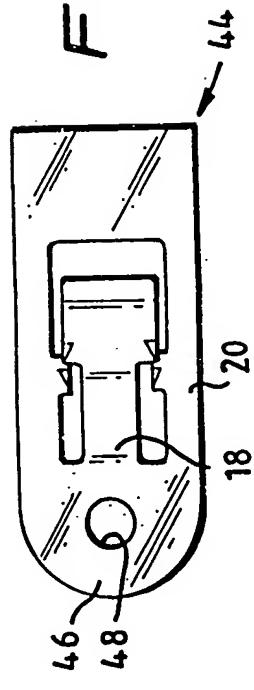


FIG. 9

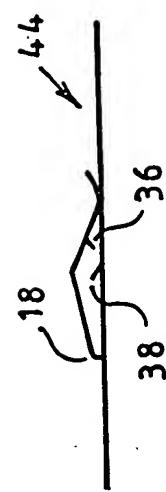


FIG. 6

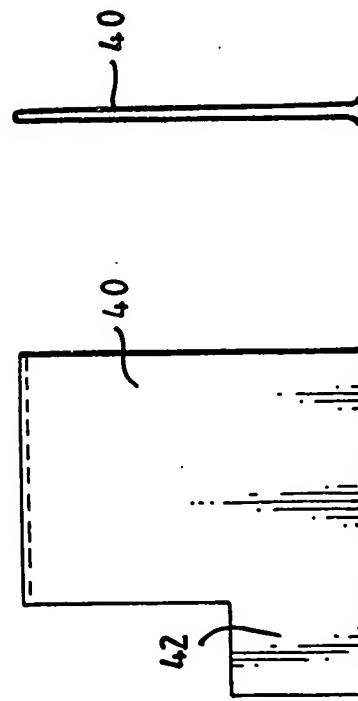


FIG. 5

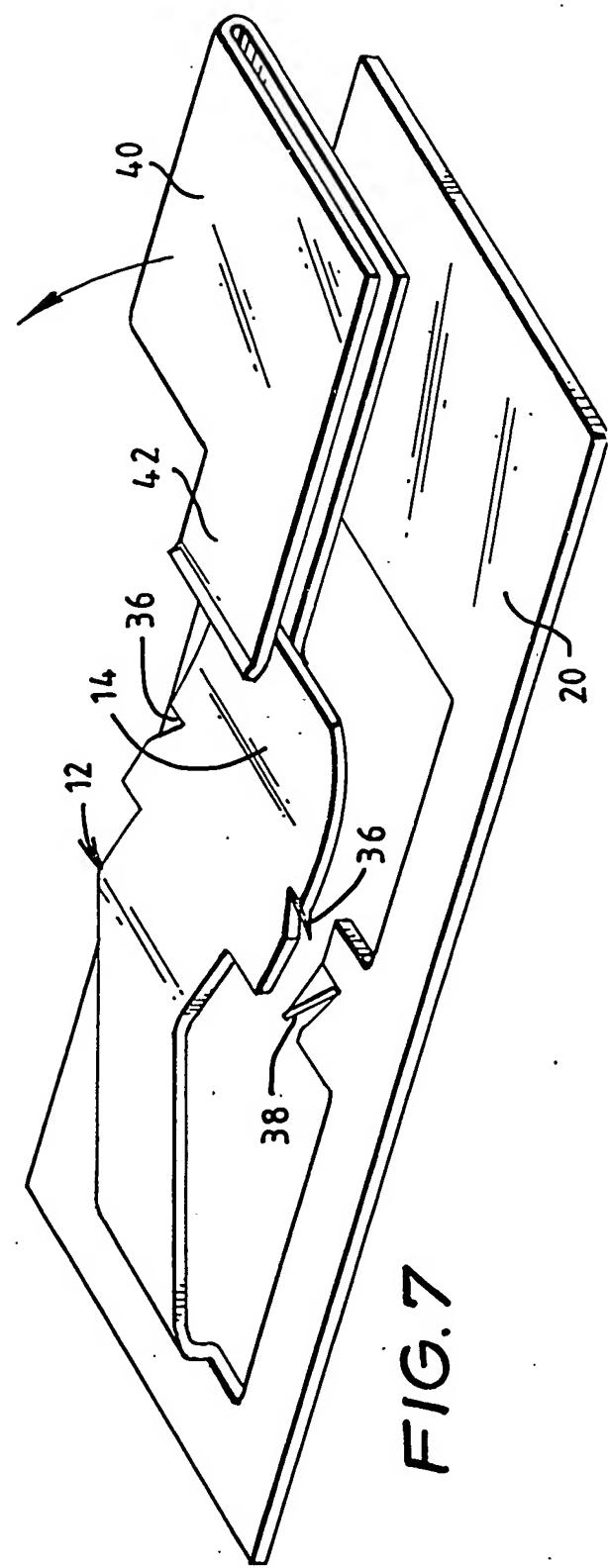


FIG. 7

CLIPS

This invention relates to clips for paper, fabric and like materials; such clips are primarily intended to be used as paper clips but can also, for example be used as security tags for clothing in retail stores. The invention particularly relates to clips made from sheet metal.

Conventional, bent wire paper clips have paper engaging edges provided by each end of the wire; these edges serve to increase the grip of the clip on either side of the papers held by the clip.

However, sheet metal clips, which are usually formed by stamping, do not have such paper engaging free edges and, consequently, have to rely on the friction between the metal surface of the clip and the paper. Usually, the clip's metal surface is of large area and quite smooth; resulting in a poor grip.

It is an object of the present invention to provide a sheet metal clip which has an improved grip.

According to the broadest aspect of the present invention, a sheet metal clip for paper and like materials has paper engaging barbs upstanding from at least one surface of the clip.

Also according to the present invention, a sheet metal clip for paper and like materials comprises a central tongue integral with a perimeter frame, and generally opposed pairs of barbs depending from the central tongue and upstanding from the perimeter frame. By this means the grip provided by the

clip is much improved; the springy nature of the sheet metal tending to drive opposed barbs towards one another.

In a preferred embodiment of the present invention, each barb is reverse directed towards the junction between the tongue and the frame.

Also according to the present invention, a method of making a clip comprises:- cutting sheet metal to form a central tongue within and attached to a perimeter frame; shaping the tongue and frame to have complementary outer and inner profiles with non-linear sides, such that one part of the tongue is at least as wide as the internal gap between parts of the frame inner profile; forming at least one downwardly projecting barb in a side edge of the wider tongue part and at least one upwardly projecting barb in an inner side edge of said parts of the inner frame profile; and, bending the central tongue up from the perimeter frame so that it lies generally above the plane of the perimeter frame, with the or each tongue barb generally opposed to a frame barb.

In a preferred embodiment of the method of the present invention:- the tongue is shaped to have a narrow waist proximate its junction with the perimeter frame; angled slots are formed in the side edges of the tongue remote from said junction and in the inner side edges of the perimeter frame facing the central tongue waist; and, the central tongue and perimeter frame adjacent each slot are bent respectively downwards and upwards to form opposed barb pairs. By this means, a clip can be formed by a simple stamping operation followed by bending operations.

The above and other features of the present invention are illustrated, by way of example, in the Drawings, wherein:- Fig.1 is a plan of a stamped metal sheet, for a paper clip; Fig.2 is a side elevation of the metal sheet of Fig.1; Fig.3 is an under-plan of a finished sheet metal paper clip in accordance with the present invention; Fig.4 is a sectional, side elevation on the line IV-IV of Fig.3; Figs 5 and 6 are, respectively, a side and an end elevation of a clip removing tool; Fig.7 is a perspective illustration of the clip removing tool of Figs 5 and 6 engaging the paper clip of Figs 1 to 4; and, Figs 8 and 9 are, respectively, a plan and a side elevation of a modified paper clip. As shown by Figs 1 and 2, a rectangular blank 10 of half hard type 304 stainless steel is stamped to have a central tongue 12, having a spatulate end part 14 and a waisted part 16 which attaches, by a junction 18, to a perimeter frame 20. The inner profile 22 of the perimeter frame generally complements the outer profile of the central tongue. A slot 24 is cut in each side 26 of the tongue spatulate portion 14 and is angled away from the junction 18. The perimeter frame has an ear 28 in each side 30 which projects towards the tongue waist 16. A slot 32 is cut in each ear 28 and is also angled away from the junction 18. The width w of the tongue spatulate end 14 is wider than the internal gap g between the frame ears 28. All the above shaping can be performed by a simple stamping operation, which can also shape the outer frame profile 34.

The tongue portions adjacent the angled slots 24 are bent

downwardly to form triangular barbs 36 (see Figs 3 and 4) and the frame portions adjacent the angle slots 32 are bent upwardly, again to form triangular barbs 38; in either case, the angle of slots 24 and 32 ensure that the barbs 36 and 38 are reversely directed, back towards the junction 18 between the tongue 12 and the perimeter frame 20 (i.e. away from the free, forward end 14 of the tongue).

The tongue 12 is then bent upwardly so that the waisted portion 16 arches above the plane of the perimeter frame 20 and the spatulate portion 14 then curves back towards and finally away from the plane of the frame at its free end (see Fig. 4). This switchback bending of the tongue 12 has the effect of shortening its length so that each tongue barb 36 is close to and opposes a frame barb 38. When not in use, tongue barbs 36 contact frame ears 28 and tongue waisted portion 16 arches over frame barbs 38; all the barbs are therefore guarded.

The clip blanks may, conveniently, be scrap from manufacturing the shutters for 3 1/2" computer floppy disks. Each shutter has a pair of ports which, when the disk is inserted in a drive, permit the read/write heads to access the disk, and it is the scrap from these ports that forms the clip blanks. In a preferred method of manufacture, the clips are formed as part of the same stamping operation that produces the shutters.

In use, a clip is pressed over a sheaf of papers or other sheet material with the upturned free end of the tongue riding up over the top sheet of paper and, when the clip has been fully pressed home, the opposed pairs of barbs are driven by

spring pressure between the tongue and the frame to firmly grip the papers. Grip can be improved by pulling the clip in the reverse direction, which causes the reversely directed barbs to bite into the material being held.

Removal of the clip can be achieved by:- folding the material in half, with the tongue on the inside of the fold; applying a slight downward pressure to the frame, whilst simultaneously pulling it from the material; and, then removing the clip with a slight twisting and lifting action. The engagement between the barbs and fabric can be such that removal of the clip can be very difficult; thus, giving the possibility of using the clip as a security tag for clothing. The metal tag activating detectors at shop exits in known manner. To assist clip removal, especially from fabric, a removal tool has been designed which, as shown by Figs 5 and 6, comprises a folded, generally rectangular sheet 40 of stainless steel having a pair of laterally projecting feet 42. In use, the feet 42 embrace the free end 14 of the tongue 12, with the lower foot passing between the tongue barbs 36, and rotation of the tool in the direction of the arrow lifts the tongue away from the perimeter frame 20; disengaging the barbs from the fabric.

A modified clip 44 is shown by Figs 8 and 9 to comprise an extension 46 to the junction end 18 of the perimeter frame 20. The extension 46 has a hole 48 that enables the clip to be mounted to a ring binder so that, with a clip 44 for each ring, papers can be clipped into the binder. The hole 46 also enables the clip to be mounted or attached to other articles.

## CLAIMS:

1. A sheet metal clip having paper engaging barbs upstanding from at least one surface of the clip.
2. A sheet metal clip comprising a central tongue integral with a perimeter frame, and generally opposed pairs of barbs depending from the central tongue and upstanding from the perimeter frame.
3. A sheet metal clip as claimed in claim 2 wherein each barb is reverse directed towards the junction between the tongue and the frame.
4. A method of making a clip comprising:- cutting a sheet metal blank to form a central tongue within and attached to a perimeter frame; shaping the tongue and frame to have complimentary outer and inner profiles with non-linear sides, such that one part of the tongue is at least as wide as the internal gap between parts of the frame inner profile; forming at least one downwardly projecting barb in a side edge of the wider tongue part and at least one upwardly projecting barb in an inner side edge of at least one of said one part of the inner frame profile; and, bending the central tongue up from the perimeter frame so that it lies generally above the plane of the perimeter frame, with the or each tongue barb generally opposed to a frame barb.

5. A method as claimed in claim 4 wherein:- the tongue is shaped to have a narrow waist proximate its junction with the perimeter frame; angled slots are formed in the side edges of the tongue remote from said junction and in the inner side edges of the perimeter frame facing the central tongue waist; and, the central tongue and perimeter frame adjacent each slot are bent respectively downwards and upwards to form opposed barb pairs.

6. A method as claimed in claim 5 wherein the slots are angled away from the junction between the central tongue and the perimeter frame so that the barbs can be bent from the central tongue and the perimeter frame to be reverse directed towards said junction.

7. A sheet metal clip substantially as described with reference to or as shown by Figs 1 to 4 or Fig.7 of the Drawings.

8. A method of making a clip substantially as described with reference to Figs 1 to 4 of the Drawings.

## Patents Act 1977

Examiner's report to the Comptroller under  
Section 17 (The Search Report)

Application number

9107227.2

## Relevant Technical fields

(i) UK CI (Edition K ) B6E (ECF); E2A (AGU)

(ii) Int CI (Edition 5 ) B42F; F16B

## Search Examiner

G J W RUSSELL

## Databases (see over)

(i) UK Patent Office

(ii)

## Date of Search

14.6.91

## Documents considered relevant following a search in respect of claims

1-8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2056547 A (EATON) see table (4) and (48)	1
X	GB 2020194 A (REGIE NATIONALE DES USINES RENAULT) see teeth (2a)	1
X	GB 1590246 (R & H WALE) see teeth (8)	1
X	US 4253216 (J BROWN) see jaw (30)	1

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